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(12) **UK Patent Application** (19) **GB** (11) **2 258 600** (13) **A**  
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WO 91/16825 A1 US 3958092 A

(58) Field of search

UK CL (Edition K) A2B BAAC BMA9, A6S

INT CL<sup>5</sup> A23K

On-line databases: W.P.I. CLAIMS

(54) Preparation of soft dog chews

(57) The invention comprises a substance and a method of manufacture of said substance whereby a cow's raw hide is cut into suitable shapes which are then dried and hardened before being heated and subsequently vacuum expanded to produce a soft dog chew. Although the resultant substance is made of the same materials and has the same taste as a conventional hard dog chew, the chew itself is in fact soft which means that it can be chewed to produce all the benefits that are normally required of a dog chew without at the same time damaging the weaker teeth of a puppy or of an old dog, for example.

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A soft dog chew and the manufacturing method of said soft  
dog chew

The invention relates to an improvement in the chewing quality of what is commonly referred to as a "dog chew", said improvement enabling said dog chew to be enjoyed equally by dogs with weak teeth, such as old dogs.

Conventionally, dog chews are made by cutting raw hide into short strips of between 3 cm and 5 cm in width and 10 cm and 30 cm in length, said strips then being bound at each end such that each strip assumes a shape like that of a bone. Said bone shaped strips are then dried and hardened in the sun to form a product which is commonly referred to as a "hard dog chew". There are also known processes whereby said hard dog chews can be colored as required with the help of coloring agents which are not harmful either to humans or to animals.

Dogs have always been found to enjoy gnawing at the type of

hard dog chew outlined above and this chewing action has in turn served the dual purpose both of inducing the secretion of saliva and, at the same time, of helping strengthen the dog's teeth. Unfortunately, however, the extreme hardness of hard dog chews that have been made according to the method described above has also tended to prove damaging on occasion to the teeth of newly weaned puppies, for example, and to the weakened teeth of dogs that are sick or old.

The present invention, which has been subjected to a variety of different tests, has been designed with the above problems in mind for the purpose of providing a soft dog chew that is suitable for chewing by puppies or old dogs for which the conventional hard type of dog chew is unsuitable. The soft dog chew of the invention is made by taking a conventional hard dog chew, which has been manufactured by cutting the raw hide into suitable strips and then drying and hardening it, said hard dog chew then being heated under pressure in a hermetically sealed rotary boiler and finally rapidly decompressed to induce vacuum expansion. The application of the vacuum expansion process to the hard dog chew causes it to become spongy inside and correspondingly soft to chew.

The soft dog chew of the invention is thus a new product which makes use of the same materials and has the same taste as the more conventional hard dog chew but which is soft rather than hard, thereby enabling it to achieve the desired effects of any dog chew when chewed but without at the same time damaging the weaker teeth of a puppy or of an old dog, for example.

There now follows a more detailed description of the present invention by reference to the preferred manufacturing method. For the purpose of said preferred manufacturing method, a cow's raw hide is first stripped away and cut into short strips of between 1 cm and 3 cm in width and 3 cm and 7 cm in length, each of said strips then being bound at each end into the shape of a bone which is subsequently dried and hardened in the sun.

An appropriate number of the resultant hard dog chews are then introduced into a rotary boiler which is hermetically sealed and then caused to rotate gently. The boiler is then heated with the help of a device such as a gas burner, said heating causing a simultaneous increase of the temperature inside the dog chew and the pressure around said dog chew. When the pressure inside the boiler has risen to

approximately 10 atmospheres, the lid of the boiler is opened and the pressure abruptly released. This has the effect of inducing a vacuum expansion inside the dog chew in the boiler as it swells to anything from three to 10 times its compressed size. The inside of the dog chew thus acquires a sponge like consistency which makes it much softer for a dog to chew.

There are no prescriptions offered with regard to the shape or size of dog chews made in accordance with the method outlined above. Moreover, the addition, during the course of the above process, of chemical agents, which are not harmful either to humans or to animals, for the purpose of improving the color or taste of the dog chew of the invention is entirely optional.

Again, in order to provide a dog with a different kind of chewing enjoyment, it would be perfectly possible to take 5 sq cm to 20 sq cm remnants of the cow's raw hide, which was cut into short strips in the preferred manufacturing method outlined above, but in this case cut them into 2 cm or 3 cm squares which could then be formed into fish shapes, heart shapes or any other preferred shape for use as dog biscuits. Again, the method of this invention may be applied to the raw hide of a wide variety of different animals, but it is preferable to use the raw hide of a cow.

WHAT IS CLAIMED IS:

1. A soft dog chew obtained by the heating under pressure and subsequent vacuum expansion of a substance comprising a part of a raw hide after it has been peeled away, cut into suitable pieces and then dried and hardened.
2. The soft dog chew according to claim 1 in which said raw hide is cut into short strips.
3. The soft dog chew according to claim 1 in which both ends of each strip are bound and formed into the shape of a bone.
4. The soft dog chew according to claim 1 in which coloring agents are added.
5. The soft dog chew according to claim 1 in which aromatic agents are added.
6. The manufacturing method of a soft dog chew which

comprises

a process whereby a raw hide is cut into suitable pieces which are then dried and hardened, and

a process whereby the product of the preceding process is heated in a hermetically sealed boiler until the pressure rises, after which decompression is effected by the abrupt release of the accumulated pressure, thereby causing a vacuum expansion.

7. The manufacturing method according to claim 6 in which

the raw hide of the first process is cut into short strips.

8. The manufacturing method according to claim 7 in which

the raw hide that is cut into short strips comprises what is left (the remnants) after said raw hide has been used for some other purpose.

9. The manufacturing method according to claim 6 in which

the drying operation of the first process is carried out by exposure to sunlight.



10. The manufacturing method according to claim 6 in which  
  
the heating operation of the second process is carried out  
by a gas burner which is applied to a slowly rotating  
hermetically sealed rotary boiler.
11. The manufacturing method according to claim 6 in which  
  
the decompression operation of the second process is carried  
out by opening the lid of said boiler.
12. The manufacturing method according to claim 6 in which  
  
coloring agents are added during the course of manufacture.
13. The manufacturing method according to claim 6 in which  
  
aromatic agents are added during the course of manufacture.
14. A soft dog chew substantially as herein described.
15. A method of manufacturing a soft dog chew substantially as  
herein described.

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

GB 9216861.6

**Relevant Technical fields**

(i) UK CI (Edition K/L) (A2B) BAAC; BMA9 (A6S); SX

(ii) Int CI (Edition 5) A23K

Search Examiner

B J GARDNER

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASE: WPI, CLAIMS

Date of Search

27 OCT 1992

Documents considered relevant following a search in respect of claims

1-15

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
P, X	WO 91/16825 A1 (AXEBROD) See particularly summary of the invention	1-5 at least
X	US 3958932 (THE GRIFFITH LABORATORIES INC) See part, column 3 lines 23 to end and column 4 lines 1-20	1-5 at least

Category	Identity of document and relevant passages	Relevance to claim(s)

### Categories of documents

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**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

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